

REMARKS:

- 1) Referring to item 11 on Form PTO-326 and relating to the proposed drawing corrections, applicants are enclosing five Replacement Sheets of corrected drawings under separate cover to the Drawing Review Branch. In addition to labeling Figs. 1a, 1b, 1c, 2a, 2b and 3 as "PRIOR ART", all figures have been distributed onto five sheets rather than four sheets as originally filed, in order to avoid crowding and to assure that proper margins are maintained. Additional reference numbers have been inserted in Figs. 6, 7, 8, 9 and 10 in order to identify items that were originally shown, but were not provided with individual reference numbers. For example, the temperature sensor conductors (12) have now received individual reference numbers (12A) and (12B). Similarly, the electric heater (6) has in fact three portions as originally disclosed, namely the portion (6A), the portion (6B) and the portion (6C) which connects the portions (6A) and (6B) in series with each other. Also, the originally disclosed contact points between the electric heater (6) and the sensor conductors (12A, 12B) have now been provided with individual reference numbers (12A') and (12B'). The added reference numbers in the drawings do not contain any new matter. Entry of the Replacement Sheets is respectfully requested.
- 2) Editorial revisions have been made in the specification in order to provide antecedent basis in the specification for the language now used in the additional claims. Since the originally filed

drawings show all the now individually labeled features, the additional editorial amendments in the specification do not contain any new matter.

- 3) Claims 1 to 31 have been canceled and replaced by new claims 32 to 51 as shown above. Entry of the new claims 32 to 51 for Continued Examination by the Examiner is respectfully requested.
- 4) The new claims 32 to 51 are based on the original claims and disclosure as follows.

New Claims	32	33	34	35	36	37	38	39	40	41
Original Support	17+25+ Pg. 7, ln. 20-23	19	20	21	22	23	24	26	27	28

New Claims	42	43	44	45	46	47	48	49	50	51
Original Support	29	30	31	Figs. 6-10	Fig. 6	Fig. 7	Fig. 8	Fig. 9	Fig. 10	Fig. 10+ pg. 18, ln. 1-20

The new claims do not contain any new matter. The new independent claim 32 is a combination of the previous claims 17 and 25 plus the feature originally disclosed on page 7, lines 20 to 23 of the Literal Translation of the specification. More specifically, the independent claim 32 is directed to a gas sensor in which the exact temperature determination of the function or sensor layer (4) is controlled through temperature sensor conductors (12A) and (12B) which provide a control signal for an exact temperature regulation or closed loop control of the

operating temperature of the function layer (4) to keep that temperature constant.

- 5) In connection with the "to provide a closed loop control signal for said electrical heater" as now defined at the end of new claim 32, it should be explained that the original German term "genaue Temperaturregelung" (page 5, lines 15 and 16) of the German specification has been correctly translated on page 7 of the Literal Translation, line 22 as "exact temperature regulation". The German term "Regelung" always refers to a closed loop control, to distinguish from the term "Steuerung" which refers to an "open loop" control.
- 6) The features of new independent claim 32 and the features of the claims remaining dependent under claim 32 solve the following problem. In a gas sensor of this type the heat dissipation is varying between the conductor section (9) that carries the power supply conductors (2) and the temperature sensor conductors (12A, 12B), and the sensor section which carries the sensor layer (4). The heat dissipation varies particularly in the transition region which is the region (G) in the present drawings. Please see, for example, present Fig. 6. It is the purpose of the invention to keep the operating temperature of the sensor layer (4) constant in spite of the intense heat dissipation in the region (G). This is accomplished by sensing the temperatures in the region (G) and in the region (L) where the sensor layer (4) is positioned and to provide a feedback control signal on the basis of the measured temperature to supply a quantity of heat that is capable of

compensating for the heat loss, particularly in the transition region (G). Since the heat dissipation varies, the generation of the amount of compensating heat must also vary. This feature has now been emphasized in new independent claim 32.

- 7) Such a structure as now defined in independent claim 32 and the dependent claims 33 to 51 is not shown in any of the references taken singly, nor is such a structure as now more clearly claimed suggested by any of the references taken in combination.
- 8) The rejection of claims 17 to 24 and 28 to 31 as under 35 U.S.C. §102(b) as being anticipated by Murase et al. (U. S. Patent 4,883,947) is respectfully traversed. The measuring electrode (22) and the reference electrode (24) of Murase et al. are connected directly to an external detecting device such as a potentiometer or rather voltmeter (26) to indicate the oxygen concentration of an atmosphere to which the measuring electrode (22) is exposed, please see col. 9, lines 26 to 40 of the Murase et al. disclosure. The measuring and display of the oxygen concentration does not anticipate the generation of a control signal for the claimed purpose of controlling the heat energy supply so that the heating of the sensor layer (4) will compensate any heat dissipation to maintain the temperature of the sensor layer (4) constant. Withdrawal of the rejection in view of Murase et al. is respectfully requested.
- 9) The rejection of claims 17, 18, 19, 21 to 24, and 28 to 31 under 35 U.S.C. §102(b) as being anticipated by newly cited U. S.

Patent 5,895,591 (Kojima et al.) is respectfully traversed. Kojima et al. do not disclose any temperature sensing in a gas sensor for the purpose of controlling the heat supply to the gas sensor. Therefore, Kojima et al. cannot anticipate the invention as now more clearly claimed in claims 32 to 51.

- 10) The rejection of claims 17 to 23 as being anticipated by U. S. Patent 4,825,693 (Bohrer et al.) is respectfully traversed. The undisputable fact that all resistors produce heat does not anticipate the now more clearly claimed features as outlined above.
- 11) With regard to section 5 on page 4 of the Final Office Action, it is not clear whether the rejection of claims 17 and 25 to 27 is under 35 U.S.C. §102(b) as stated in section 5 on page 4 of the Office Action or whether that rejection is under 35 U.S.C. §103(a) since section 5 appears on its face to rely on the combination of two references, namely U. S. Patent 4,345,465 (Gruner et al.) and the above mentioned U. S. Patent 4,883,947 (Murase et al.). In any event, neither Gruner et al. nor Murase et al. taken singly anticipate the invention as now more clearly claimed. The correction of manufacturing defects as disclosed in col. 1 of Murase et al., does not anticipate the present teaching as now defined in claims 32 and the claims remaining dependent under claim 32. Correcting manufacturing defects also does not suggest that the electric power supply for the heating of the sensor layer (4) should be so controlled in closed loop fashion that any variable heat dissipation will be compensated

by a respectively varying amount of compensating heat to keep the operating temperature of the sensor more specifically of the sensor layer (4) constant. Therefore, even if the teachings of Murase et al. are combined with those of Gruner et al., the present invention will not result, much less will it be suggested by the combination of Gruner et al. with Murase et al. or vice versa.

12) Gruner et al. also does not disclose any temperature sensing and therefore cannot anticipate the invention as now more clearly claimed. The Final Office Action refers particularly to the "other resistor 5 of Gruner et al.". However, the other resistor (5) is a temperature independent resistor and therefore cannot detect temperature variations, please see col. 2, line 50 of the Gruner et al. disclosure. Gruner et al. measure the flow rate and/or the temperature of the flowing medium presumably with the temperature dependent resistors (4). Gruner et al. do not measure the temperature of the sensor itself for the purpose of controlling the sensor temperature as claimed herein. Therefore, Gruner et al. cannot anticipate the now more clearly claimed invention.

13) The granting of a Telephone Interview on August 12, 2003 is sincerely appreciated. Applicants have made a serious effort to more clearly define the invention as has been suggested by the Examiner in the middle of page 5 of the Final Office Action.

- 14) Favorable reconsideration and allowance of the application, including all present claims 32 to 51, are respectfully requested.

Respectfully submitted,

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Applicant

WGF:ar/4191/PCT
Encl.: postcard,
RCE Request Transmittal,
Credit Card Payment Form,
Letter to Drawing Review Branch,
5 sheets of drawings

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